AMENDMENTS TO CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in this application. Please cancel claims 1-16 and add new claims 17-33.

1 – 16. (Cancelled)

17. (New) A composite spectral measurement method comprising:

emitting a composite light from an incident light source composed of a continuous light source and a discrete light source, the continuous light source emitting wideband continuous light, the discrete light source emitting at least one single-wavelength light or at least one narrowband continuous light, wherein the wavelength of the at least one single-wavelength light or the spectrum of the narrowband continuous light is within a range of the spectrum of the wideband continuous light;

using a probe, irradiating the composite light onto a target position, and receiving light reflected by the target position at the probe, wherein the wideband continuous light and the at least one single-wavelength light or at least one narrowband continuous light are irradiated onto the target position through an exiting position in the probe, and the light reflected by the target position is received at a receiving position;

in a receiving unit, adding the wideband continuous light reflected by the target position and the at least one single-wavelength light or at least one narrowband continuous light reflected by the target position in an overlapped or non-overlapped manner, to obtain a composite spectrum; and

in a data processing unit, analyzing the obtained composite spectrum by using a mathematical model to obtain a concentration of a component of interest.

18. (New) The composite spectral measurement method according to claim 17, wherein the wideband continuous light and the at least one single-wavelength light or at least one narrowband continuous light are irradiated onto the target position respectively through different exiting positions in the probe, and the light reflected by the target position is received at a plurality of receiving positions.

19. (New) The composite spectral measurement method according to claim 17, wherein the continuous light source is an acoustic optical tunable filter NIR spectrometer; and

the discrete light source is a light emitting diode (LED), or a laser diode (LD), or a tunable semiconductor laser.

20. (New) The composite spectral measurement method according to claim 19, wherein the discrete light source is composed of one or more laser diodes (LDs).

21. (New) The composite spectral measurement method according to claim 17, wherein the range of the spectrum of the wideband continuous light is any wavelength band within 0.8 – 2.5 μm.

22. (New) The composite spectral measurement method according to claim 21, wherein the wavelength of the at least one single-wavelength light is one of 980nm, 1310nm, 1550nm, 1610nm and 1650nm.

23. (New) The composite spectral measurement method according to claim 22, wherein the component of interest is blood glucose.

24. (New) The composite spectral measurement method according to claim 17, wherein in the receiving unit, the wideband continuous light reflected by the target position and the at least one single-wavelength light or at least one narrowband continuous light reflected by the target position are measured by a sampling sequential control, in which the sampling sequential control comprises one of:

measuring the wideband continuous light reflected by the target position first, and then measuring the at least one single-wavelength light or at least one narrowband continuous light reflected by the target position; or

measuring the at least one single-wavelength light or at least one narrowband continuous light reflected by the target position first, and then measuring the wideband continuous light reflected by the target position; or

according to a sequence of wavelength, alternatively measuring the wideband continuous

light reflected by the target position and the at least one single-wavelength light or at least one narrowband continuous light reflected by the target position.

25. (New) A non-invasive composite spectral detection instrument comprising:

an incident light source composed of a continuous light source and a discrete light source for emitting a composite light, the continuous light source emitting wideband continuous light, the discrete light source emitting at least one single-wavelength light or at least one narrowband continuous light, wherein the wavelength of the at least one single-wavelength light or the spectrum of the narrowband continuous light is within a range of the spectrum of the wideband continuous light;

a continuous light transmission fiber for transmitting the wideband continuous light emitted from the continuous light source;

a discrete light transmission fiber for transmitting the at least one single-wavelength light or at least one narrowband continuous light emitted from the discrete light source;

a probe for irradiating the composite light onto a target position, and for receiving light reflected by the target position;

a receiving fiber for transmitting the light reflected by the target position and received by the probe;

a receiving unit for adding the wideband continuous light reflected by the target position and the at least one single-wavelength light or at least one narrowband continuous light reflected by the target position in a overlapped or non-overlapped manner, to obtain a composite spectrum; and

a data processing unit for analyzing the obtained composite spectrum by using a mathematical model to obtain a concentration of a component of interest.

26. (New) The non-invasive composite spectral detection instrument according to claim 25, wherein a light exiting end of the continuous light transmission fiber is of a ring shape, a light exiting end of the discrete light transmission fiber is of a circle shape, a light incident end of the receiving fiber is of a ring shape, an end of the probe is of a circle shape,

the light exiting end of the continuous light transmission fiber, the light exiting end of the

discrete light transmission fiber and the light incident end of the receiving fiber are concentrically arranged with a center at the center of the end of the probe,

the light exiting end of the discrete light transmission fiber is located at the center of the end of the probe,

the light exiting end of the continuous light transmission fiber is immediately adjacent to the light exiting end of the discrete light transmission fiber, and

the light incident end of the receiving fiber is outside of the light exiting end of the continuous light transmission fiber.

27. (New) The non-invasive composite spectral detection instrument according to claim 25, wherein the receiving fiber comprises an inner receiving fiber and an outer receiving fiber,

a light exiting end of the continuous light transmission fiber is of a ring shape, a light exiting end of the discrete light transmission fiber is of a circle shape, a light incident end of the inner receiving fiber and a light incident end of the outer receiving fiber are both of a ring shape, an end of the probe is of a circle shape,

the light exiting end of the continuous light transmission fiber, the light exiting end of the discrete light transmission fiber, the light incident end of the inner receiving fiber and the light incident end of the outer receiving fiber are concentrically arranged with a center at the center of the end of the probe,

the light exiting end of the discrete light transmission fiber is located at the center of the end of the probe,

the light incident end of the inner receiving fiber is outside of the light exiting end of the discrete light transmission fiber,

the light exiting end of the continuous light transmission fiber is outside of the light incident end of the inner receiving fiber, and

the light incident end of the outer receiving fiber is outside of the light exiting end of the continuous light transmission fiber.

28. (New) The non-invasive composite spectral detection instrument according to claim 25, wherein the continuous light source is an acoustic optical tunable filter NIR spectrometer; and

the discrete light source is a light emitting diode (LED), or a laser diode (LD), or a tunable semiconductor laser.

29. (New) The non-invasive composite spectral detection instrument according to claim 28, wherein the discrete light source is composed of one or more laser diodes (LDs).

30. (New) The non-invasive composite spectral detection instrument according to claim 25, wherein the continuous light source emits the wideband continuous light whose spectrum has a range of any wavelength band within 0.8 – 2.5 μm.

31. (New) The non-invasive composite spectral detection instrument according to claim 30, wherein the discrete light source emits the at least one single-wavelength light at a wavelength of one of 980nm, 1310nm, 1550nm, 1610nm and 1650nm.

32. (New) The non-invasive composite spectral detection instrument according to claim 31, wherein the component of interest is blood glucose.

33. (New) The non-invasive composite spectral detection instrument according to claim 25, wherein the receiving unit measures the wideband continuous light reflected by the target position and the at least one single-wavelength light or at least one narrowband continuous light reflected by the target position using a sequential sampling control, in which the sequential sampling control comprises one of:

measuring the wideband continuous light reflected by the target position first, and then measuring the at least one single-wavelength light or at least one narrowband continuous light reflected by the target position; or

measuring the at least one single-wavelength light or at least one narrowband continuous light reflected by the target position first, and then measuring the wideband continuous light reflected by the target position; or

according to a sequence of wavelength, alternatively measuring the wideband continuous light reflected by the target position and the at least one single-wavelength light or at least one narrowband continuous light reflected by the target position.